

Amendments to the Claims:

1. (Currently Amended) A peptide, ~~characterized in that it has~~ having a helix-loop-helix type structure comprising the sequence of a calmodulin loop including at least one mutation to neutral residues selected from the group consisting of Ser (S), Thr (T), Cys (C), His (H), Tyr (Y), Asn (N) and Gln (Q), of one, two or three residues of at least one of the four calcium-binding sites of calmodulin:

- . site I: residues selected from residues D20, D22 and D24,
- . site II: residues selected from residues D56, D58 and N60,
- . site III: residues selected from residues D93, D95 and N97,
- . site IV: residues selected from residues D129, D131 and D133,

said positions being indicated with reference to the human calmodulin sequence (SWISSPROT P02593).

2. (Currently Amended) The peptide as claimed in claim 1, ~~characterized in that~~ wherein the mutation is ~~preferably~~ a mutation to threonine (Thr), serine (Ser) or asparagine (Asn) neutral residues.

3. (Currently Amended) The peptide as claimed in claim 1 ~~or claim 2, characterized in that~~ wherein the mutation is ~~preferably~~ a mutation, to a threonine residue, of residue D20, D22 or D24, a mutation, to a threonine, serine or asparagine residue, of the two residues D20 and D24, of the two residues D20 and D22 or of the two residues D22 and D24, or a mutation, to a threonine, serine or asparagine residue, of the three residues D20, D22 and D24.

4. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 3,~~ claim 1, wherein it is a calmodulin calcium-binding site mutant.

5. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 4,~~ claim 1, wherein it is a cyclic peptide which has helices that each include a mutation of an amino acid residue to a residue that allows chemical bridging, in particular a cysteine residue, which cysteines are connected via a disulfide bridge.

6. (Currently Amended) The peptide as claimed in claim 5, ~~characterized in that~~ wherein it has the mutations F19C and V35C.

7. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 6,~~ ~~characterized in that~~ claim 1, wherein it also includes the mutation of an amino acid residue to a fluorescent amino acid residue.

8. (Currently Amended) The peptide as claimed in claim 7, ~~characterized in that~~ wherein said fluorescent amino acid residue is a tyrosine residue or a tryptophan residue.

9. (Currently Amended) The peptide as claimed in claim 8, ~~characterized in that~~ wherein it has a mutation selected from the group consisting of: T26Y, T26W, A15W and F16W.

10. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 9,~~ ~~characterized in that~~ claim 1, wherein it has one of the sequences SEQ ID Nos. 4-7 or SEQ ID Nos. 9-12.

11. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 10,~~ ~~characterized in that~~ claim 1, wherein it is conjugated to at least one fluorophore.

12. (Currently Amended) The peptide as claimed in claim 11, ~~characterized in that~~ wherein it is conjugated to two different fluorophores.

13. (Currently Amended) The peptide as claimed in claim 11 ~~or claim 12,~~ ~~characterized in that~~ wherein said fluorophore is a fluorescent protein selected from: EBFP, ECFP, EYFP, EGFP, DsRed, CopGFP and PhiYFP.

14. (Currently Amended) The peptide as claimed in claim 11 ~~or claim 12,~~ ~~characterized in that~~ wherein said fluorophore is selected from dansyl, coumarin, fluorescein and Alexa derivatives.

15. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 14,~~
~~characterized in that~~ claim 1, wherein it is associated with at least one molecule that allows
targeting to the kidney and/or to the bone.

16. (Currently Amended) The peptide as claimed in ~~any one of claims 1 to 14,~~
~~characterized in that~~ claim 1, wherein it is associated with a molecule that promotes its excretion
in vivo.

17. (Currently Amended) A polypeptide[[,]] ~~characterized in that it comprises~~
comprising the concatenation of at least two identical or different peptides as claimed in ~~any one~~
~~of claims 1 to 16~~ claim 1.

18. (Currently Amended) A peptide composition[[,]] ~~characterized in that it~~
~~comprises~~ comprising at least one polypeptide as claimed in claim 17 and at least one suitable
vehicle.

19. (Currently Amended) A fusion protein[[,]] ~~characterized in that it consists~~
consisting of the in-frame fusion of the sequence of at least one peptide as claimed in ~~any one of~~
~~claims 1 to 10~~ claim 1, with the sequence of an appropriate protein.

20. (Currently Amended) The fusion protein as claimed in claim 19, ~~characterized in~~
~~that~~ wherein the sequence of said peptide is fused to the sequence of a protein selected from the
group consisting of calmodulin, chameleon proteins derived from the latter and proteins having a
helix-loop-helix type motif, capable of binding calcium.

21. (Currently Amended) The fusion protein as claimed in claim 19 ~~or claim 20,~~
~~characterized in that~~ wherein it is conjugated to at least one fluorophore as defined in claim 13 ~~or~~
14.

22. (Currently Amended) The fusion protein as claimed in claim 21, ~~characterized in that~~ wherein one of the ends of said protein is coupled to a fluorescence donor, and the other is coupled to a fluorescence acceptor.

23. (Currently Amended) The fusion protein as claimed in claim 22, ~~characterized in that~~ wherein it comprises, at one of its ends, the sequence of EBFP or ECFP and, at the other end, the sequence of EGFP or of EYFP.

24. (Currently Amended) ~~The use of~~ A method of using a product selected from the group consisting of: a peptide as claimed in ~~any one of claims 1 to 16~~ claim 1, a polypeptide as ~~claimed in claim 17~~ derived from said peptide, a peptide composition as ~~claimed in claim 18~~ comprising said peptide and a fusion protein as ~~claimed in any one of claims 19 to 23, derived from said peptide, said method comprising for~~ preparing a reagent for detecting soils and water contaminated with uranium from said product.

25. (Currently Amended) ~~The use of~~ A method of using a product selected from the group consisting of: a peptide as claimed in ~~any one of claims 1 to 16~~ claim 1, a polypeptide as ~~claimed in claim 17~~ derived from said peptide, a peptide composition as ~~claimed in claim 18~~ comprising said peptide and a fusion protein as ~~claimed in any one of claims 19 to 23, for~~ derived from said peptide, said method comprising preparing a reagent for diagnosing individuals contaminated with uranium from said product.

26. (Currently Amended) An isolated nucleic acid molecule, ~~characterized in that it comprises~~ comprising a sequence encoding a peptide as claimed in ~~any one of claims 1 to 16~~ claim 1, a polypeptide as claimed in claim 17 or a fusion protein as ~~claimed in any one of claims 19 to 23.~~

27. (Currently Amended) Probes and primers, ~~characterized in that they are~~ capable of specifically detecting/amplifying the nucleic acid molecules as claimed in claim 26, which probes and primers comprise a sequence of approximately 10 to 30 nucleotides that is adjacent to

a helix-loop-helix type motif or else to one of the helices or to the loop of this motif, of a calcium ion-binding protein.

28. (Currently Amended) A eukaryotic or prokaryotic recombinant vector, ~~characterized in that it comprises~~ comprising an insert consisting of a nucleic acid molecule as claimed in claim 26.

29. (Currently Amended) Eukaryotic or prokaryotic cells, ~~characterized in that they are~~ modified with a recombinant vector as claimed in claim 28.

30. (Currently Amended) A transgenic nonhuman animal organism, ~~characterized in that it comprises~~ comprising cells modified with a nucleic acid molecule as claimed in claim 26.

31. (Currently Amended) A transgenic plant, ~~characterized in that it comprises~~ comprising cells modified with a nucleic acid molecule as claimed in claim 26.

32. (Currently Amended) Prokaryotic or eukaryotic cells modified with a regulatory system that includes a peptide as claimed in ~~any one of claims 1 to 16~~ claim 1 as a regulator or repressor of a gene encoding a bioluminescent protein.

33. (Currently Amended) ~~The use of~~ A method for the remediation of soil or water contaminated with uranium, comprising contacting soil or water contaminated with uranium with the modified prokaryotic or eukaryotic cells as claimed in claim 29 or of transgenic plants as claimed in claim 31, for the remediation of soils and water contaminated with uranium.

34. (Currently Amended) ~~The use of~~ A method of using the modified prokaryotic or eukaryotic cells as claimed in claim 32~~[[,]]~~ for which comprises preparing a reagent for detecting soils and water contaminated with uranium from said cells.

35. (Currently Amended) ~~The use of~~ A method of using the modified prokaryotic or eukaryotic cells as claimed in claim 32~~[[,]]~~ for which comprises preparing a reagent for diagnosing individuals contaminated with uranium from said cells.

36. (Currently Amended) An antibody, ~~characterized in that it binds selectively to the peptide as claimed in any one of claims 1 to 16~~ claim 1.

37. (Currently Amended) A kit for detecting a contamination with uranium, ~~characterized in that it comprises~~ comprising at least one of: a peptide as claimed in ~~any one of claims 1 to 16~~ claim 1, a polypeptide derived from said peptide as claimed in claim 17, a peptide composition comprising said peptide as claimed in claim 18, a fusion protein derived from said peptide as claimed in any one of claims 19 to 23, an antibody that binds selectively to said peptide as claimed in claim 36, or modified prokaryotic or eukaryotic cells modified with a regulatory system that includes said peptide as a regulator or repressor of a gene encoding a bioluminescent protein as claimed in claim 32.

38. (New) The fusion protein as claimed in claim 19 wherein it is conjugated to at least one fluorophore as defined in claim 14.

39. (New) An isolated nucleic acid molecule comprising a sequence encoding a polypeptide as claimed in claim 17.

40. (New) An isolated nucleic acid molecule comprising a sequence encoding a fusion protein as claimed in claim 19.

41. (New) A method for the remediation of soil or water contaminated with uranium, comprising contacting soil or mater contaminated with uranium with the of transgenic plants as claimed in claim 31.